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## 1 Routine/Function Prologues

### 1.0.1 define\_gds.F90 (Source File: define\_gds.F90)

Assigns a grid definition section (GDS) array appropriate to the global resolution used.

#### REVISION HISTORY:

```
20 Jul 2001: Urszula Jambor; Initial code
12 Feb 2002: Urszula Jambor; Added latmax variable assignment
06 Mar 2002: Urszula Jambor; Added 1 & 1/2 degree resolution GDS arrays
```

#### INTERFACE:

```
subroutine define_gds ( lis )
```

#### USES:

```
use lis_module      ! LDAS non-model-specific 1-D variables
#if ( defined OPENDAP )
  use opendap_module, only : parm_nc, parm_nr, output_slat, output_nlat
#endif
  implicit none
```

#### ARGUMENTS:

```
type (lisdec):: lis
```

#### CONTENTS:

```
do i=1,200
  lis%d%kgds(i) = 0
end do
!-----
!      kgds(1) = 4 !Input grid type (4=Gaussian)
!      kgds(2) = 128 !Number of points on a lat circle
!      kgds(3) = 64 !Number of points on a meridian
!      kgds(4) = -87864 !Latitude of origin x1000
!      kgds(5) = 0 !Longitude of origin x1000
!      kgds(6) = 128 !8 bits (1 byte) related to resolution
! (recall that 10000000 = 128), Table 7
!      kgds(7) = 87864 !Latitude of extreme point x1000
!      kgds(8) = -2812 !Longitude of extreme point x1000
!      kgds(9) = 2812 !N/S direction increment x1000
!      kgds(10) = 32 !(Gaussian) # lat circles pole-equator
!      kgds(11) = 64 !8 bit scanning mode flag (Table 8)
!-----
#if ( defined OPENDAP )
  nc = parm_nc
  nr = parm_nr
#else
```

```
nc = lis%d%lnc
nr = lis%d%lnr
#endif

select case (nc)
case ( 7200) ! 5km resolution
  lis%d%kgds(1) = 0
  lis%d%kgds(2) = nc
  lis%d%kgds(3) = nr
  lis%d%kgds(4) = -59975
  lis%d%kgds(5) = -179975
  lis%d%kgds(6) = 128
  lis%d%kgds(7) = 89975
  lis%d%kgds(8) = 179975
  lis%d%kgds(9) = 50
  lis%d%kgds(10) = 50
  lis%d%kgds(11) = 64
  lis%d%kgds(20) = 255
  lis%f%latmax = 1800
case ( 2880 ) ! 1/8 degree resolution
  lis%d%kgds(1) = 0
  lis%d%kgds(2) = nc
  lis%d%kgds(3) = nr
  lis%d%kgds(4) = -59939
  lis%d%kgds(5) = -179938
  lis%d%kgds(6) = 128
  lis%d%kgds(7) = 89938
  lis%d%kgds(8) = 179938
  lis%d%kgds(9) = 125
  lis%d%kgds(10) = 125
  lis%d%kgds(11) = 64
  lis%d%kgds(20) = 255
  lis%f%latmax = 720
case ( 1440 ) ! 1/4 degree resolution
  lis%d%kgds(1) = 0
  lis%d%kgds(2) = nc
  lis%d%kgds(3) = nr
#endif ( defined OPENDAP )
  lis%d%kgds(4) = output_slat
#else
  lis%d%kgds(4) = -59875
#endif
  lis%d%kgds(5) = -179875
  lis%d%kgds(6) = 128
#endif ( defined OPENDAP )
  lis%d%kgds(7) = output_nlat
#else
  lis%d%kgds(7) = 89875
```

```
#endif
lis%d%kgds(8) = 179875
lis%d%kgds(9) = 250
lis%d%kgds(10) = 250
lis%d%kgds(11) = 64
lis%d%kgds(20) = 255
lis%f%latmax = 360
case ( 720 ) ! 1/2 degree resolution
lis%d%kgds(1) = 0
lis%d%kgds(2) = nc
lis%d%kgds(3) = nr
lis%d%kgds(4) = -59750
lis%d%kgds(5) = -179750
lis%d%kgds(6) = 128
lis%d%kgds(7) = 89750
lis%d%kgds(8) = 179750
lis%d%kgds(9) = 500
lis%d%kgds(10) = 500
lis%d%kgds(11) = 64
lis%d%kgds(20) = 255
lis%f%latmax = 180
case ( 360 ) ! 1 degree resolution
lis%d%kgds(1) = 0
lis%d%kgds(2) = nc
lis%d%kgds(3) = nr
#if ( defined OPENDAP )
lis%d%kgds(4) = output_slat
#else
lis%d%kgds(4) = -59500
#endif
lis%d%kgds(5) = -179500
lis%d%kgds(6) = 128
#if ( defined OPENDAP )
lis%d%kgds(7) = output_nlat
#else
lis%d%kgds(7) = 89500
#endif
lis%d%kgds(8) = 179500
lis%d%kgds(9) = 1000
lis%d%kgds(10) = 1000
lis%d%kgds(11) = 64
lis%d%kgds(20) = 255
lis%f%latmax = 90
case ( 144 ) ! 2 x 2.5 degree resolution
lis%d%kgds(1) = 0
lis%d%kgds(2) = nc
lis%d%kgds(3) = nr
lis%d%kgds(4) = -60000
```

```
lis%d%kgds(5) = -180000
lis%d%kgds(6) = 128
lis%d%kgds(7) = 90000
lis%d%kgds(8) = 177500
lis%d%kgds(9) = 2500
lis%d%kgds(10) = 2000
lis%d%kgds(11) = 64
lis%d%kgds(20) = 255
lis%f%latmax = 46 !Actually, 45 + 45 + 1
case default
print *, "No valid global grid defined for given resolution"
print *, "columns: ", lis%d%lnc, " rows: ", lis%d%lnr
print *, "Stopping..."
call endrun
end select
```